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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,549

10/01/2003

Gerald Thomas Fattic

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12/14/2006

DELPHI TECHNOLOGIES, INC.

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EXAMINER

MARTIN, ANGELA J.

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/676,549

**Applicant(s)**

FATTIC ET AL.

**Examiner**

Angela J. Martin

**Art Unit**

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 2-12 and 18-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 13-17, 22-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/1/03</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 2-12 and 18-21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/29/06.

### ***Claim Objections***

2. The abstract of the disclosure is objected to because it references a US Patent application but fails to provide the serial number (page 1, line 7). The application serial number is 10/676,913. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a temperature differential between a cathode of said first thermionic device and what else. Since a differential is a difference between at least two things, only the cathode is mentioned, so it appears that a second element is missing.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,13, 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Botti et al., U.S. Pat. No. 6,230,494 B1.

Rejection of claims 1, 13, 14 drawn to a power supply.

Botti et al., teach a power supply, comprising: a solid oxide fuel cell system for providing a first source of power (abstract), said solid oxide fuel cell system also producing heat waste (col. 4, lines 13-17); a first thermionic device for providing a second source of power, said first thermionic device providing said second source of power from said heat waste which is provided to said thermionic device; and wherein said heat waste is in fluid communication with a first heat exchanger of said thermionic device (col. 3, lines 62-67 and col. 4, lines 1-5). It teaches a start up combustor for providing another source of heat; and an exhaust conduit providing fluid communication between an exhaust of said fuel cell system and an exhaust of said start up combustor to said first heat exchanger (col. 2, lines 5-18). The power supply as in claim 13, wherein said heat waste of said solid oxide fuel cell system is within a range defined by a lower limit of 400 degrees Celsius and an upper limit of 1,200 degrees Celsius when said solid oxide fuel cell system is source of power (col. 7, lines 37-51).

Thus, the claims are anticipated.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 15-17 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Botti et al., U.S. Pat. No. 6,230,494 B1.

The power supply as in claim 13, further comprising a second heat exchanger, said second heat exchanger providing an inlet and an exhaust of air to an anode of said first thermionic device (col. 3, lines 62-67 and col. 4, lines 1-5). The power supply as in claim 13, wherein said first thermionic device and said start up combustor provide an initial source of power during a warm up phase of said fuel cell system (col. 4, lines 6-13). The power supply as in claim 13, wherein said start up combustor is deactivated after said fuel cell system is providing power and said heat waste (col. 4, lines 17-29). The power supply as in claim 22, wherein said second heat exchanger is coupled to a cooling system for cooling the anode of said second thermionic device (Fig. 1-3). The power supply as in claim 22, wherein said second heat exchanger is configured to receive ambient air for cooling the anode of said second thermionic device (Fig. 1-3). The power supply as in claim 22, wherein said first heat exchanger is configured and

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positioned to cool or maintain the temperature of an anode of said first thermionic device (Fig. 1-3).

Thus, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because although the prior art of record does not disclose the anode of the second thermionic device, it does disclose "Optional equipment which additionally may be employed with the present system include, but are not limited to, sensors and actuators, heat exchangers, (power mode) a battery, fuel reformer, burner, phase change material, thermal storage system, plasma trom, an ultra capacitor, and/or a desulfurizer which may be employed if the fuel is rich in sulfur, or if the catalyst employed in the SOFC is particularly intolerant to sulfur, such as nickel-based catalysts, among other conventional equipment." (col. 8, lines 32-40).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



AJM